

## ABSTRACT

Apparatus and methods are provided for interacting light with particles, including but not limited to biological matter such as cells, in unique and highly useful ways. Optophoresis consists of subjecting particles to various optical forces, especially optical gradient forces, and more particularly moving optical gradient forces, so as to obtain useful results. In biology, this technology represents a practical approach to probing the inner workings of a living cell, preferably without any dyes, labels or other markers. In one aspect, an apparatus is provided for collecting optically sorted particles by providing a first surface adapted to support a plurality of particles, an optical illumination system for subjecting the particles to a moving gradient force to cause the separation of the particles from the first surface, and a second adhesive surface for adhering the separated particles to the second surface.